FIG. 1

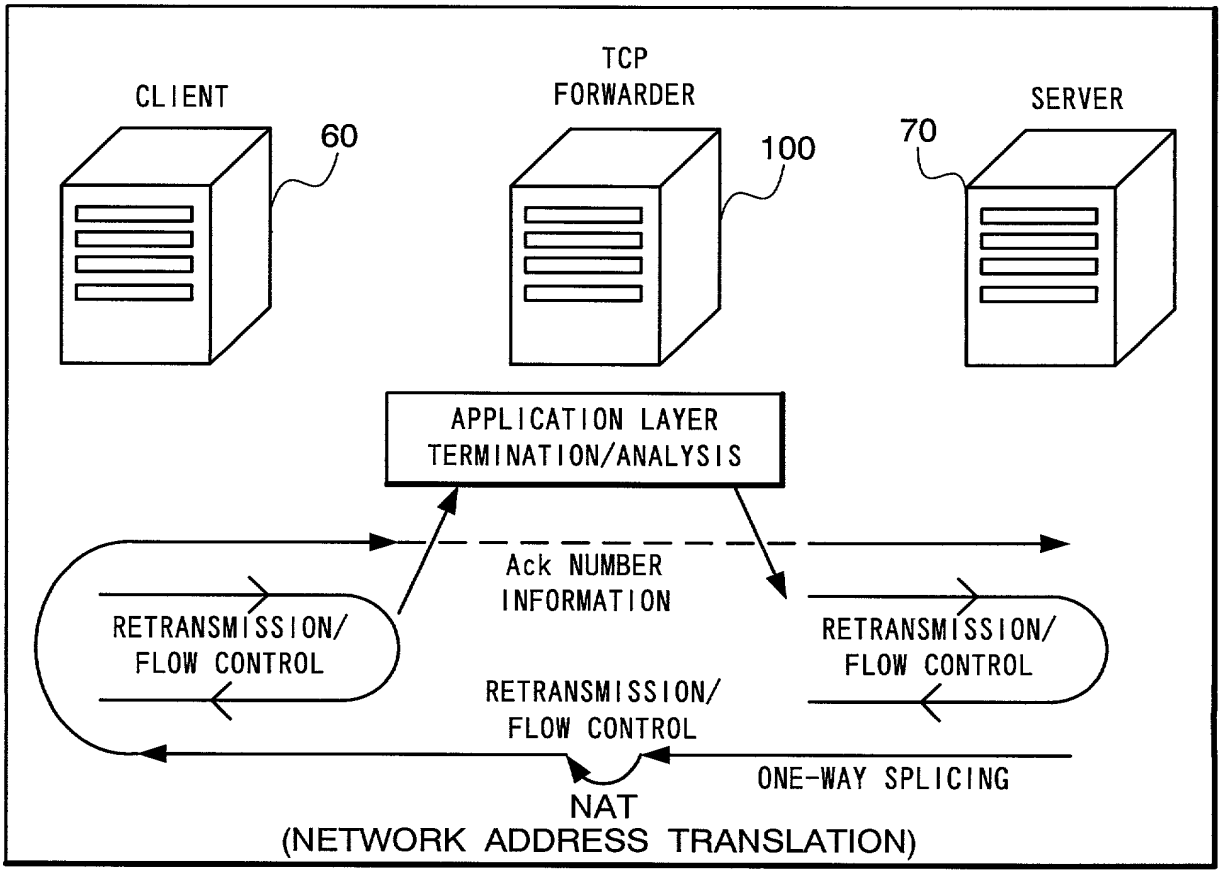

CLIENT
60
TCP
FORWARDER
100
SERVER
70
APPLICATION LAYER
TERMINATION/ANALYSIS
Ack NUMBER
INFORMATION
RETRANSMISSION/
FLOW CONTROL
RETRANSMISSION/
FLOW CONTROL
RETRANSMISSION/
FLOW CONTROL
ONE-WAY SPLICING
NAT
(NETWORK ADDRESS TRANSLATION)

FIG. 2

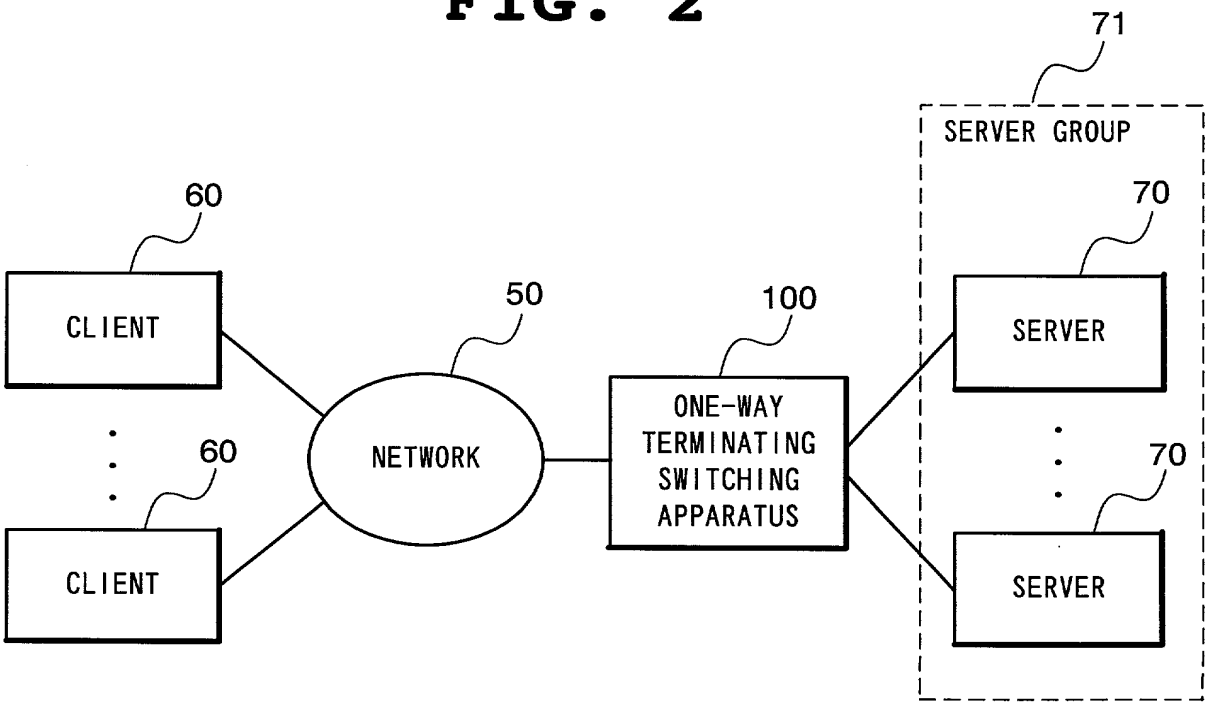

71
SERVER GROUP
60
CLIENT
60
CLIENT
50
NETWORK
100
ONE-WAY
TERMINATING
SWITCHING
APPARATUS
70
SERVER
70
SERVER

FIG. 3

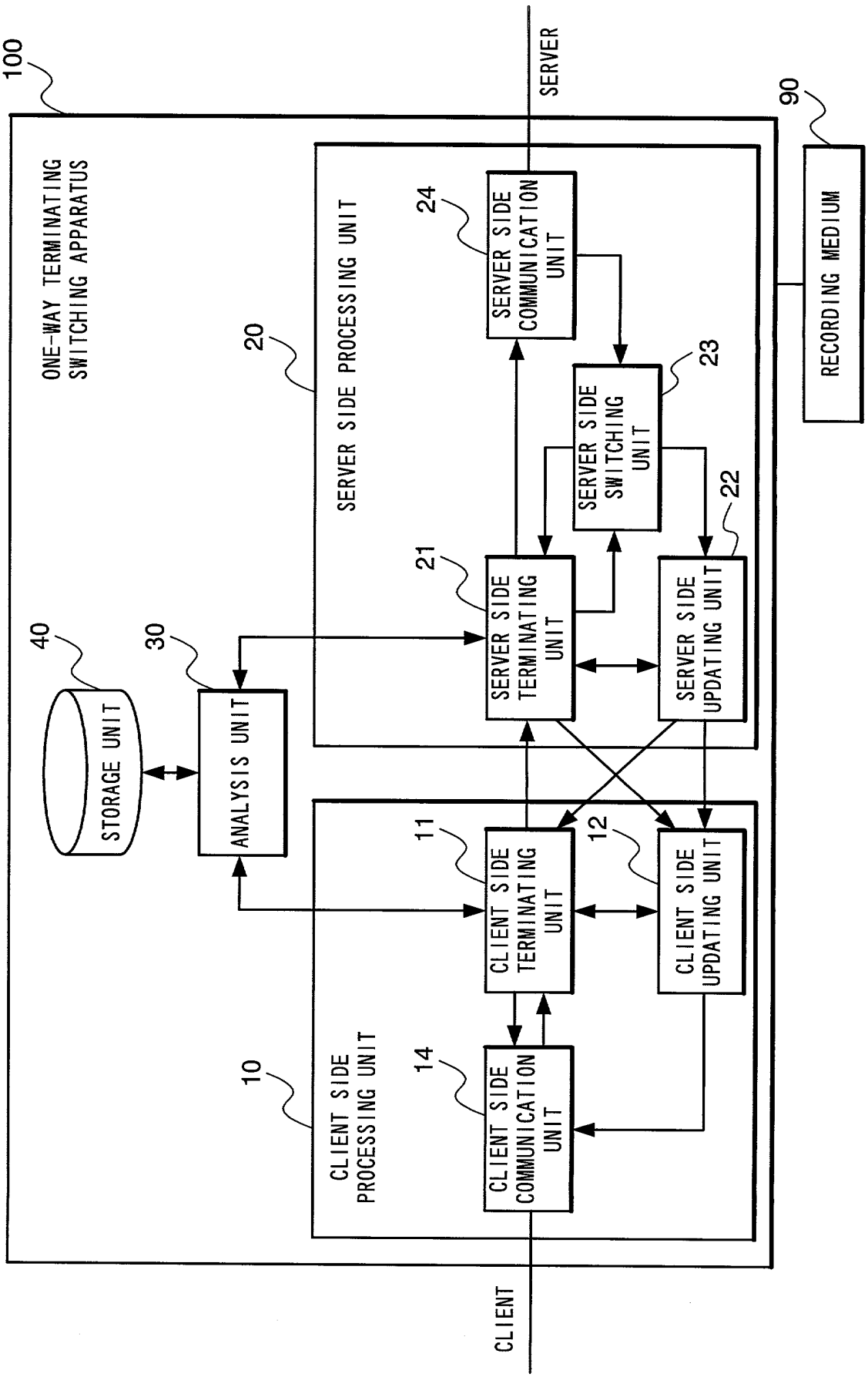

100
ONE-WAY TERMINATING SWITCHING APPARATUS
SERVER
90
RECORDING MEDIUM
20
SERVER SIDE PROCESSING UNIT
24
SERVER SIDE COMMUNICATION UNIT
23
SERVER SIDE SWITCHING UNIT
22
SERVER SIDE UPDATING UNIT
21
SERVER SIDE TERMINATING UNIT
40
STORAGE UNIT
30
ANALYSIS UNIT
11
CLIENT SIDE TERMINATING UNIT
12
CLIENT SIDE UPDATING UNIT
10
CLIENT SIDE PROCESSING UNIT
14
CLIENT SIDE COMMUNICATION UNIT
CLIENT

FIG. 4

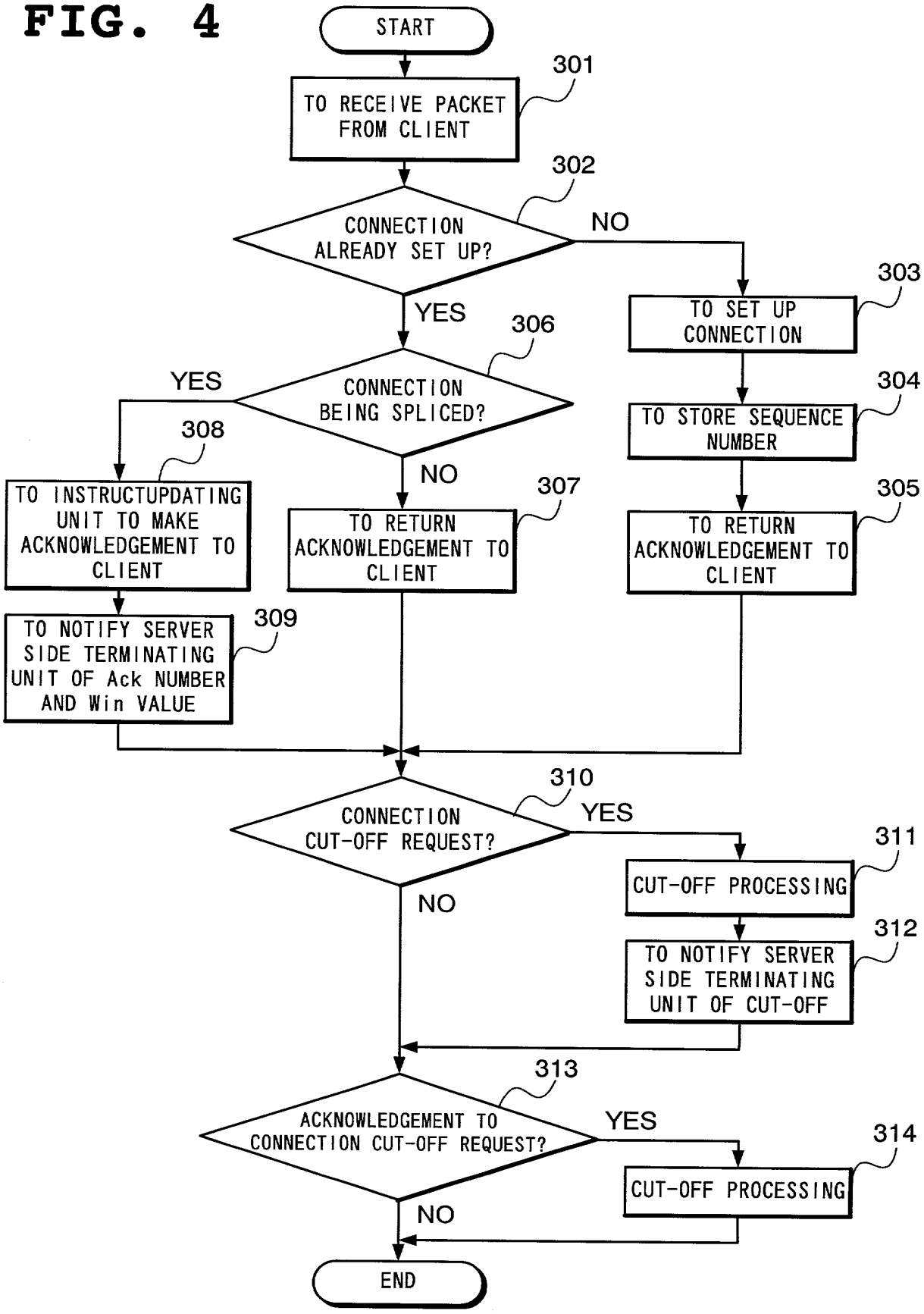

START
301
TO RECEIVE PACKET FROM CLIENT
302
CONNECTION ALREADY SET UP?
NO
YES
303
TO SET UP CONNECTION
304
TO STORE SEQUENCE NUMBER
305
TO RETURN ACKNOWLEDGEMENT TO CLIENT
306
CONNECTION BEING SPLICED?
YES
NO
307
TO RETURN ACKNOWLEDGEMENT TO CLIENT
308
TO INSTRUCTUPDATING UNIT TO MAKE ACKNOWLEDGEMENT TO CLIENT
309
TO NOTIFY SERVER SIDE TERMINATING UNIT OF Ack NUMBER AND Win VALUE
310
CONNECTION CUT-OFF REQUEST?
YES
NO
311
CUT-OFF PROCESSING
312
TO NOTIFY SERVER SIDE TERMINATING UNIT OF CUT-OFF
313
ACKNOWLEDGEMENT TO CONNECTION CUT-OFF REQUEST?
YES
NO
314
CUT-OFF PROCESSING
END

FIG. 5

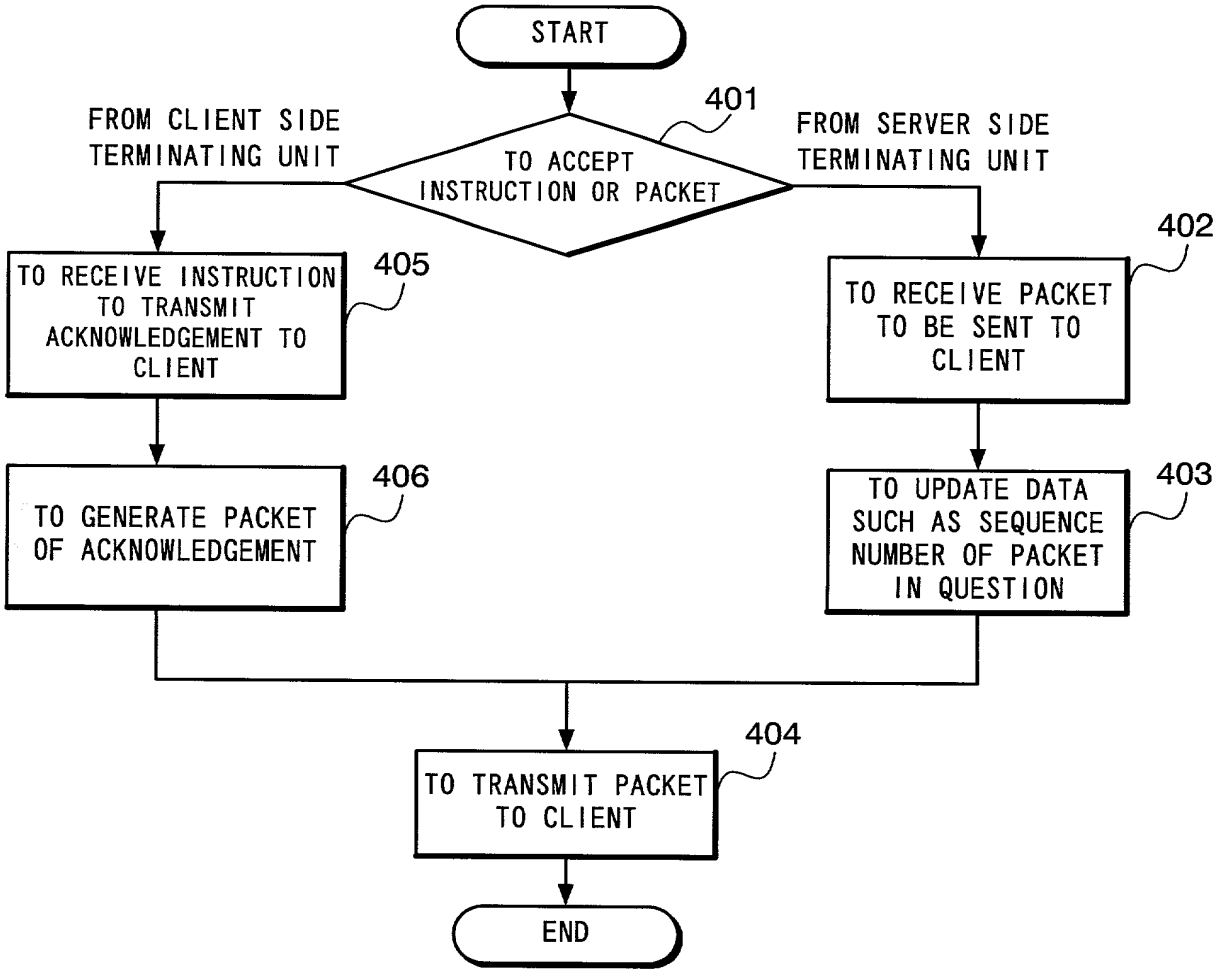
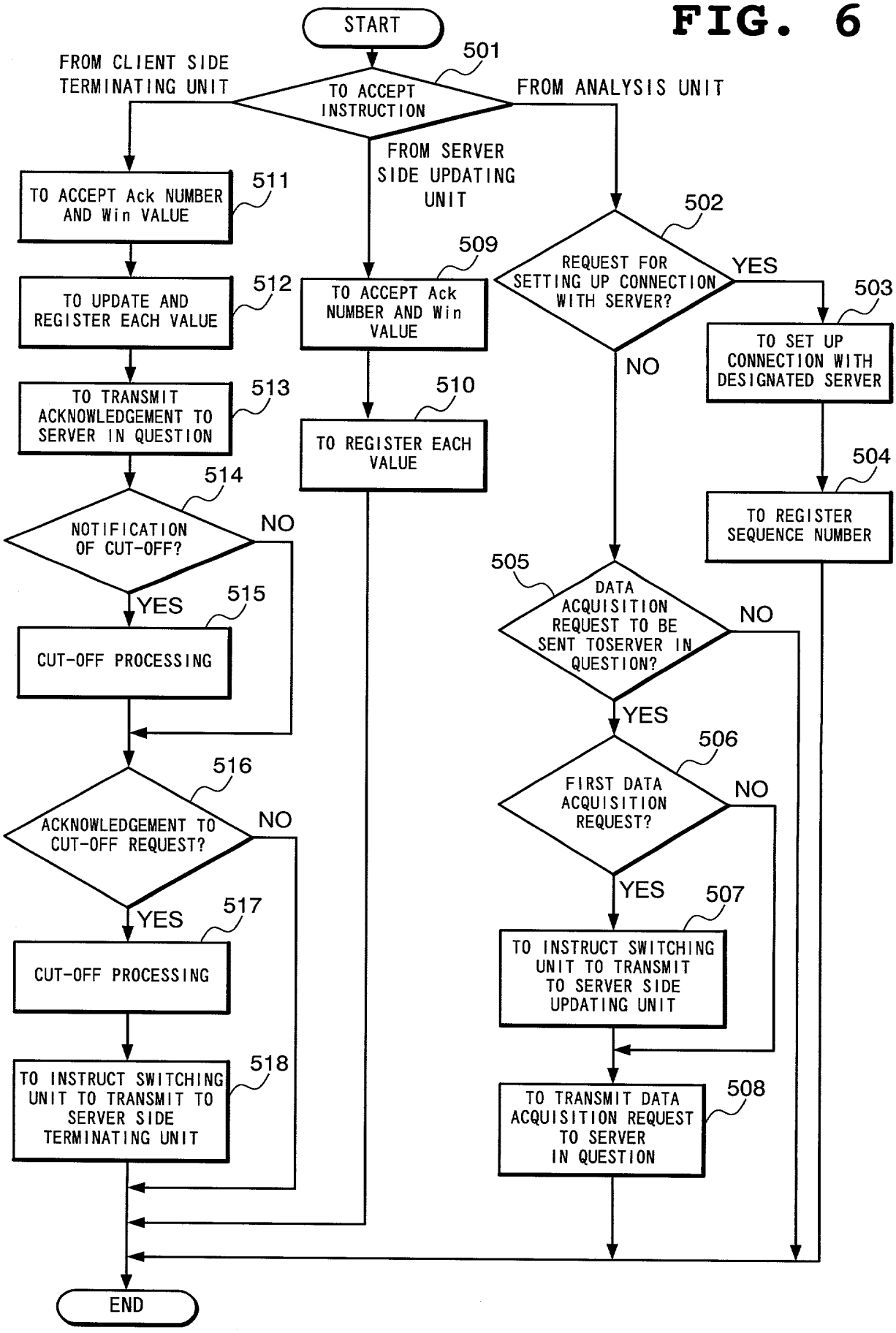

START
401
FROM CLIENT SIDE TERMINATING UNIT
TO ACCEPT INSTRUCTION OR PACKET
FROM SERVER SIDE TERMINATING UNIT
405
TO RECEIVE INSTRUCTION TO TRANSMIT ACKNOWLEDGEMENT TO CLIENT
402
TO RECEIVE PACKET TO BE SENT TO CLIENT
406
TO GENERATE PACKET OF ACKNOWLEDGEMENT
403
TO UPDATE DATA SUCH AS SEQUENCE NUMBER OF PACKET IN QUESTION
404
TO TRANSMIT PACKET TO CLIENT
END

FIG. 6



US 2005/0086360 A1 Apr. 21, 2005

FIG. 7

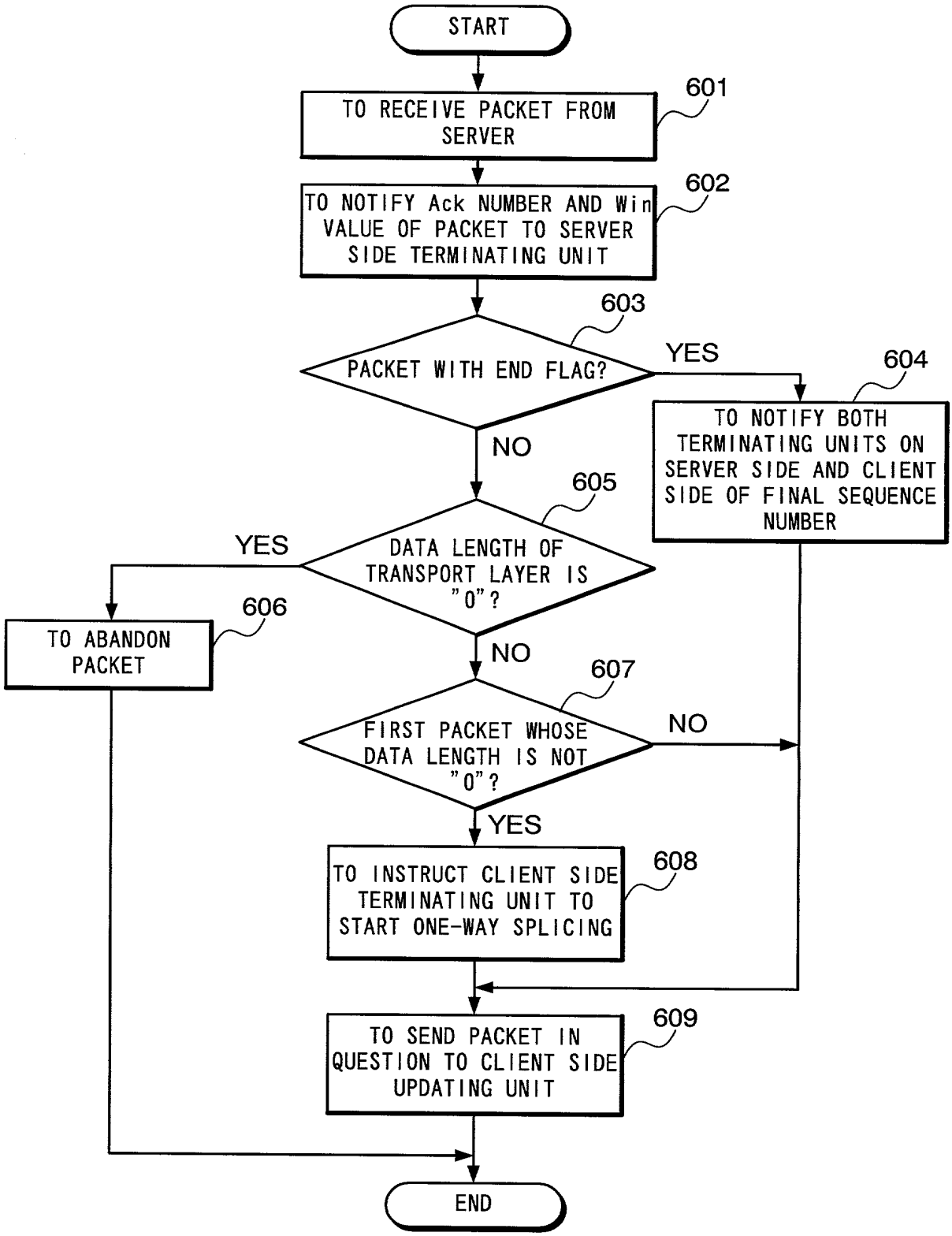

START
TO RECEIVE PACKET FROM SERVER
601
TO NOTIFY Ack NUMBER AND Win VALUE OF PACKET TO SERVER SIDE TERMINATING UNIT
602
603
PACKET WITH END FLAG?
YES
604
TO NOTIFY BOTH TERMINATING UNITS ON SERVER SIDE AND CLIENT SIDE OF FINAL SEQUENCE NUMBER
NO
605
DATA LENGTH OF TRANSPORT LAYER IS "0"?
YES
606
TO ABANDON PACKET
NO
607
FIRST PACKET WHOSE DATA LENGTH IS NOT "0"?
NO
YES
608
TO INSTRUCT CLIENT SIDE TERMINATING UNIT TO START ONE-WAY SPLICING
609
TO SEND PACKET IN QUESTION TO CLIENT SIDE UPDATING UNIT
END

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FIG. 8

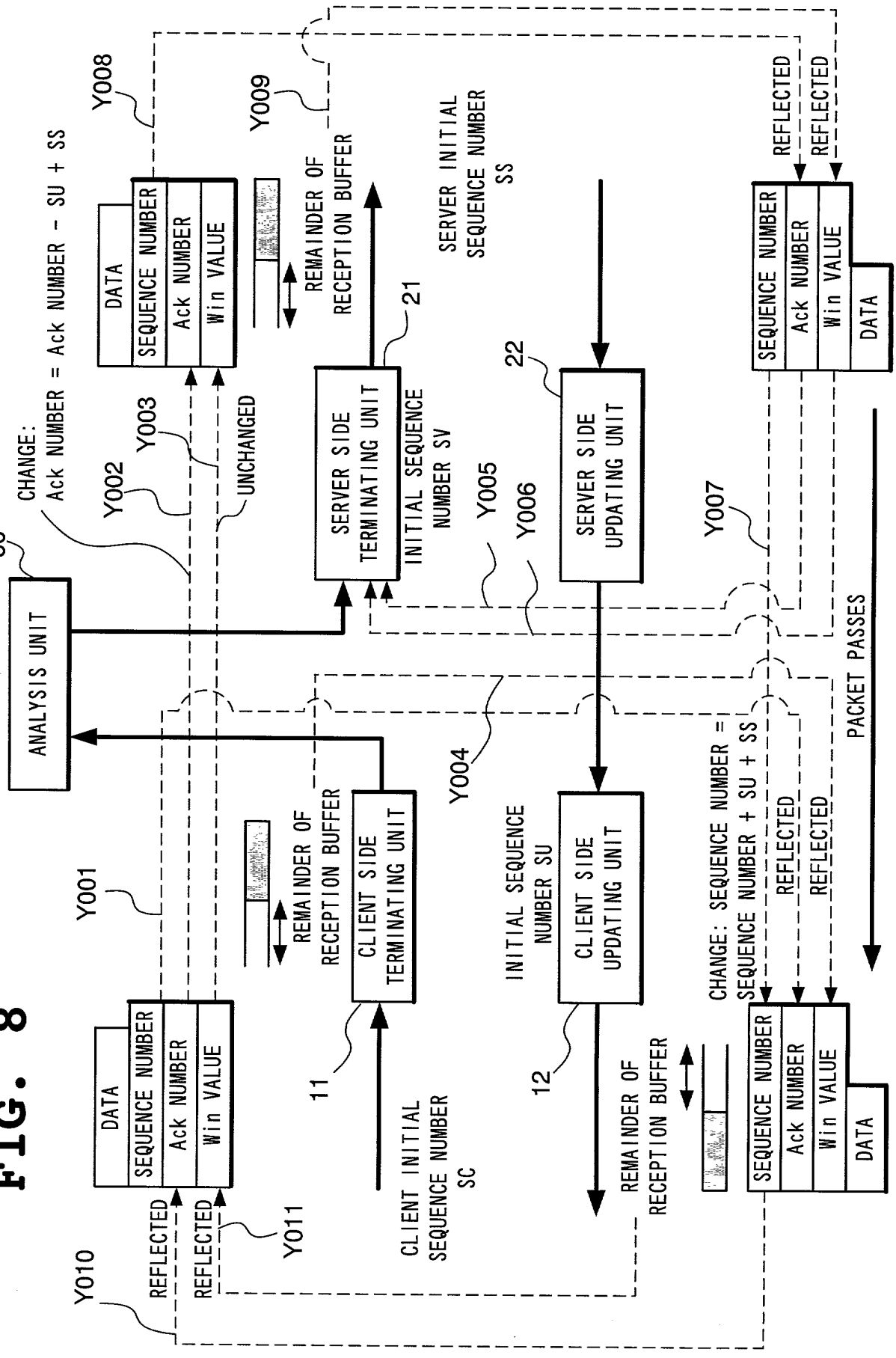

FIG. 9

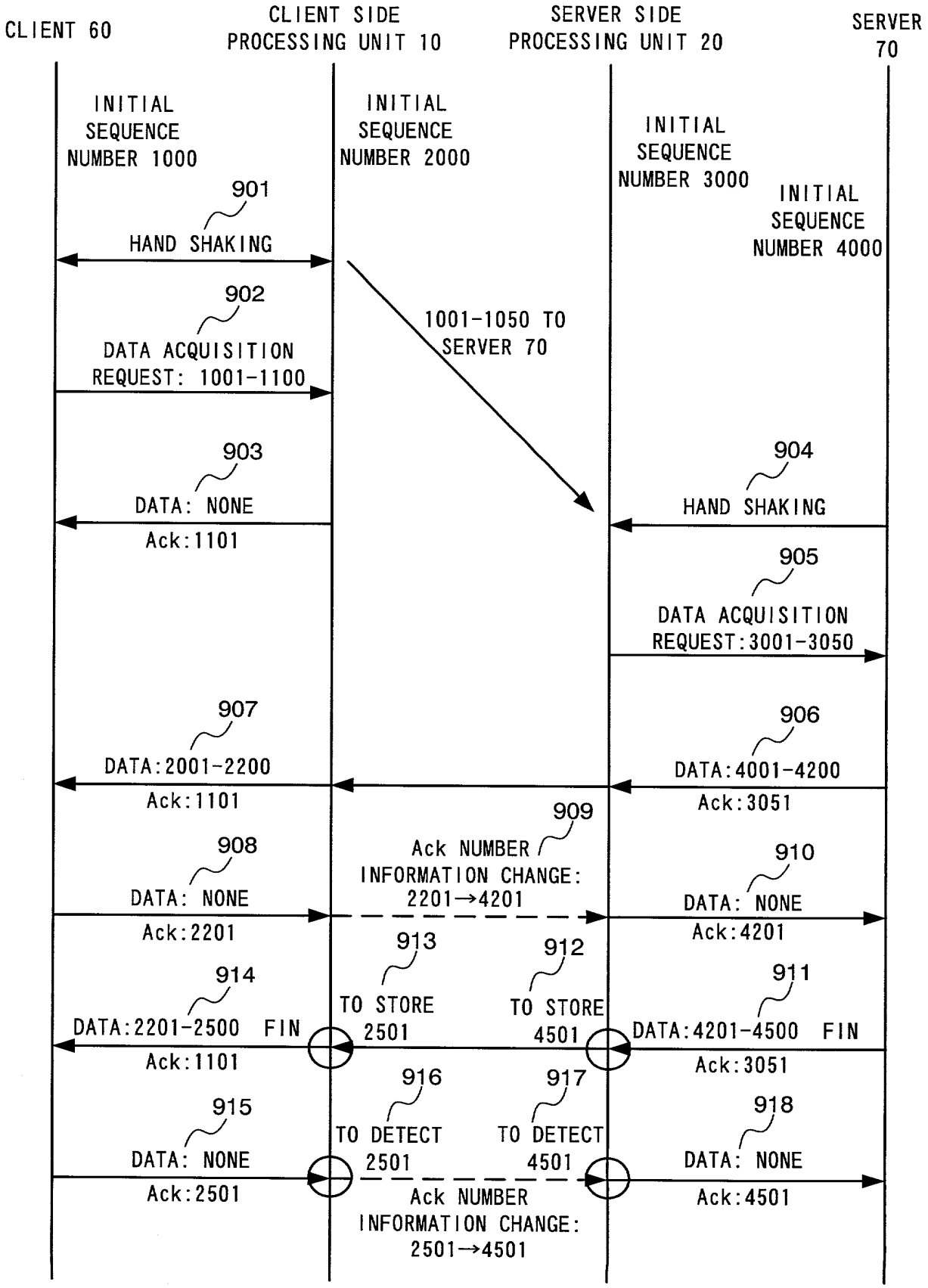
CLIENT 60
CLIENT SIDE PROCESSING UNIT 10
SERVER SIDE PROCESSING UNIT 20
SERVER 70
INITIAL SEQUENCE NUMBER 1000
INITIAL SEQUENCE NUMBER 2000
INITIAL SEQUENCE NUMBER 3000
INITIAL SEQUENCE NUMBER 4000
901
HAND SHAKING
902
DATA ACQUISITION REQUEST: 1001-1100
1001-1050 TO SERVER 70
903
DATA: NONE
Ack:1101
904
HAND SHAKING
905
DATA ACQUISITION REQUEST:3001-3050
907
DATA:2001-2200
Ack:1101
906
DATA:4001-4200
Ack:3051
909
Ack NUMBER INFORMATION CHANGE: 2201→4201
908
DATA: NONE
Ack:2201
910
DATA: NONE
Ack:4201
913
TO STORE 2501
912
TO STORE 4501
914
DATA:2201-2500 FIN
Ack:1101
911
DATA:4201-4500 FIN
Ack:3051
916
TO DETECT 2501
917
TO DETECT 4501
915
DATA: NONE
Ack:2501
918
DATA: NONE
Ack:4501
Ack NUMBER INFORMATION CHANGE: 2501→4501

FIG.10

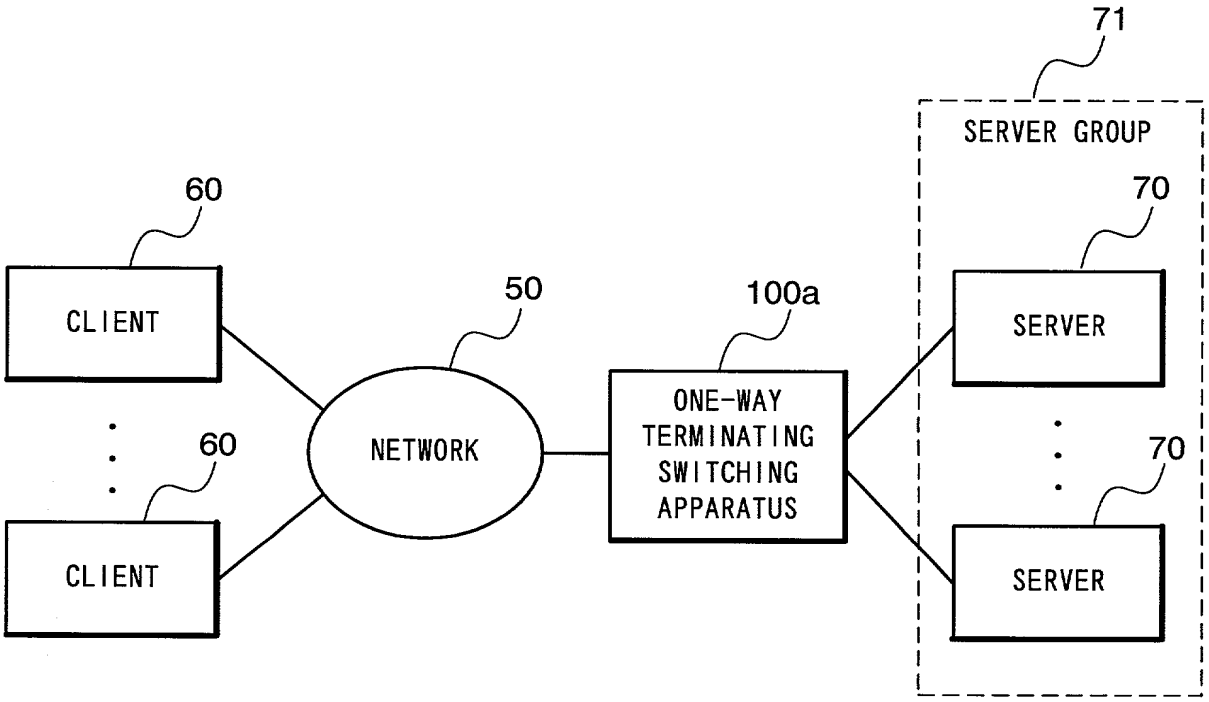

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FIG.11

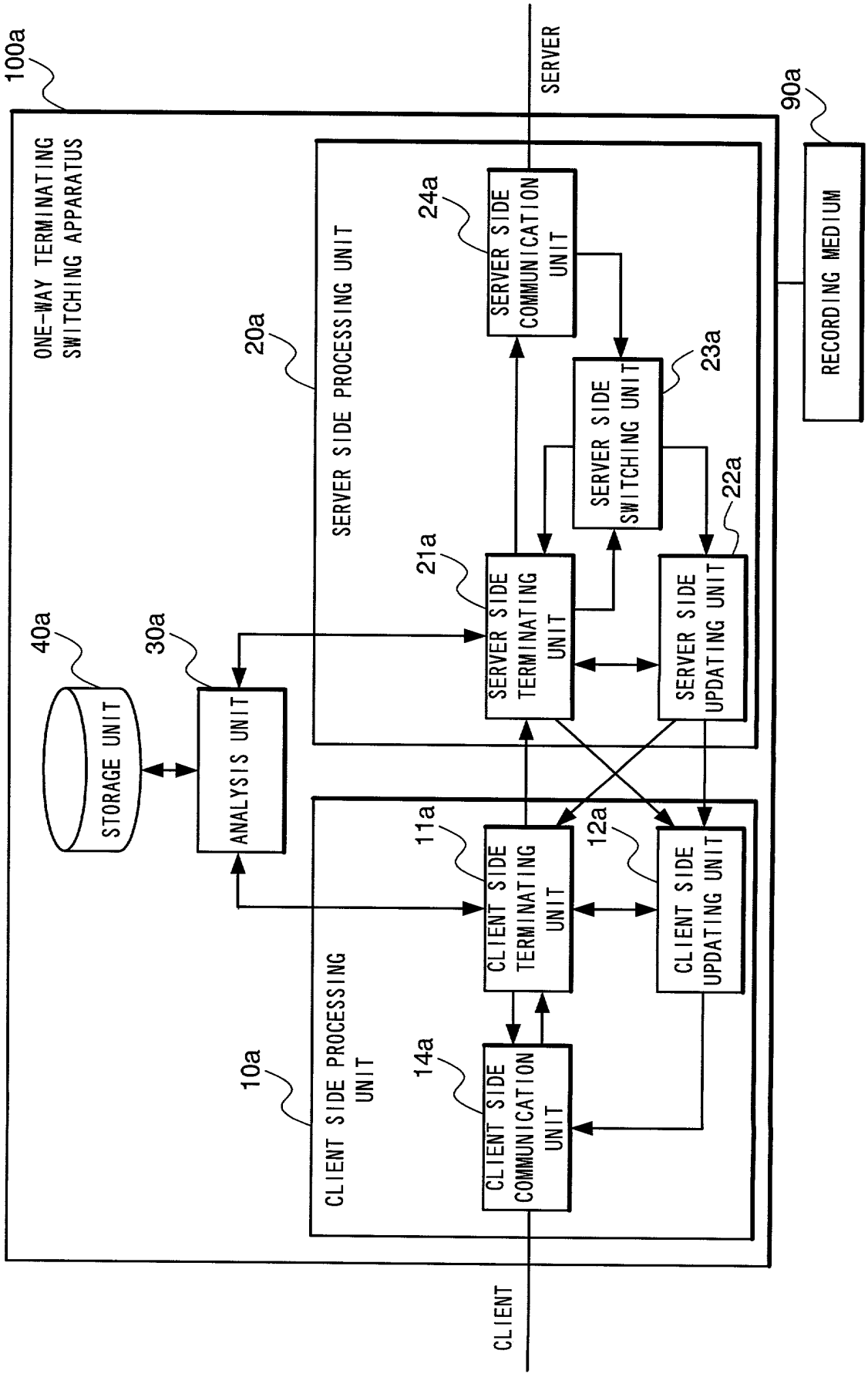
100a
ONE-WAY TERMINATING SWITCHING APPARATUS
SERVER
90a
RECORDING MEDIUM
20a
SERVER SIDE PROCESSING UNIT
24a
SERVER SIDE COMMUNICATION UNIT
23a
SERVER SIDE SWITCHING UNIT
22a
SERVER SIDE UPDATING UNIT
21a
SERVER SIDE TERMINATING UNIT
40a
STORAGE UNIT
30a
ANALYSIS UNIT
11a
CLIENT SIDE TERMINATING UNIT
12a
CLIENT SIDE UPDATING UNIT
10a
CLIENT SIDE PROCESSING UNIT
14a
CLIENT SIDE COMMUNICATION UNIT
CLIENT

FIG.12

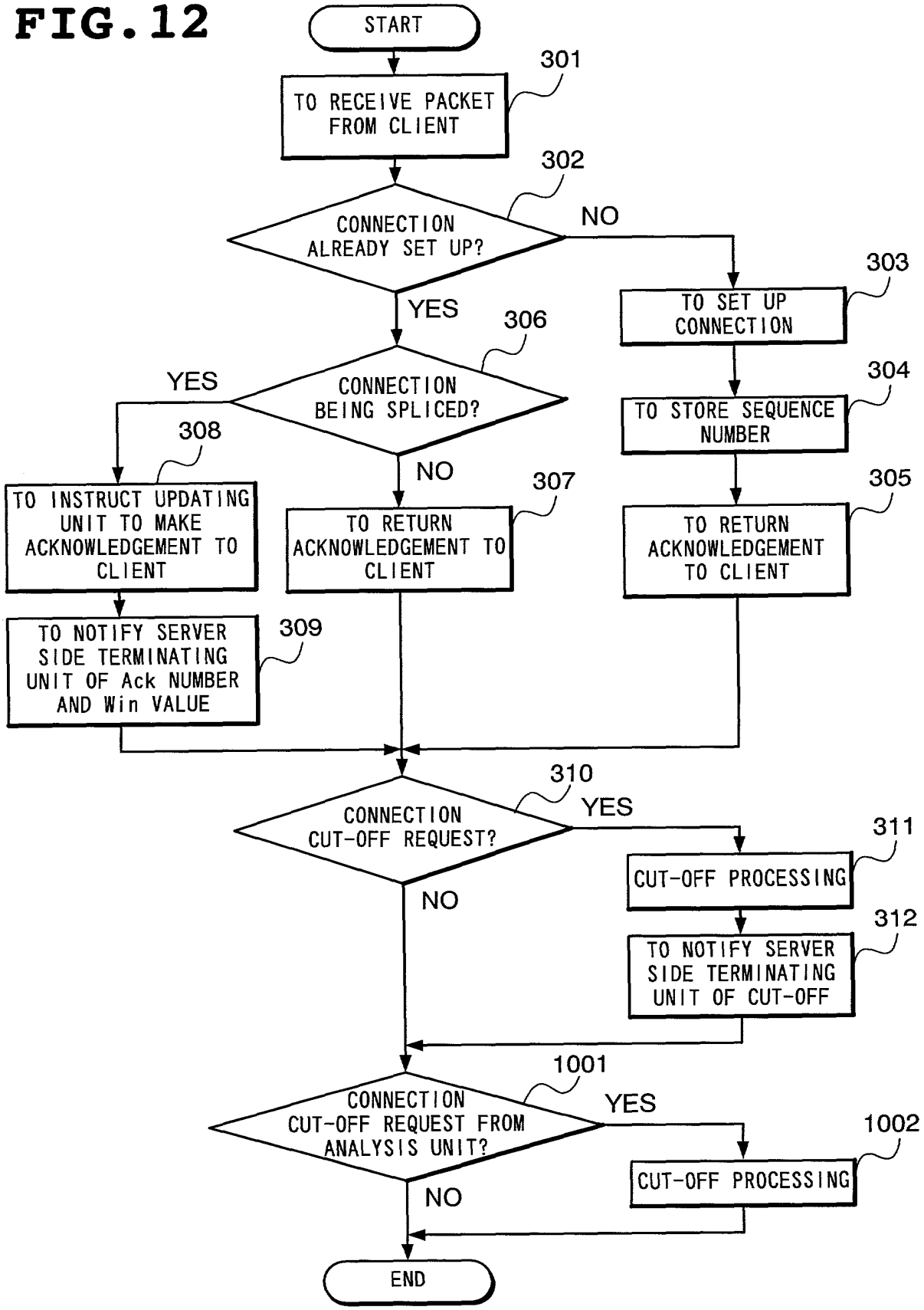

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FIG.13

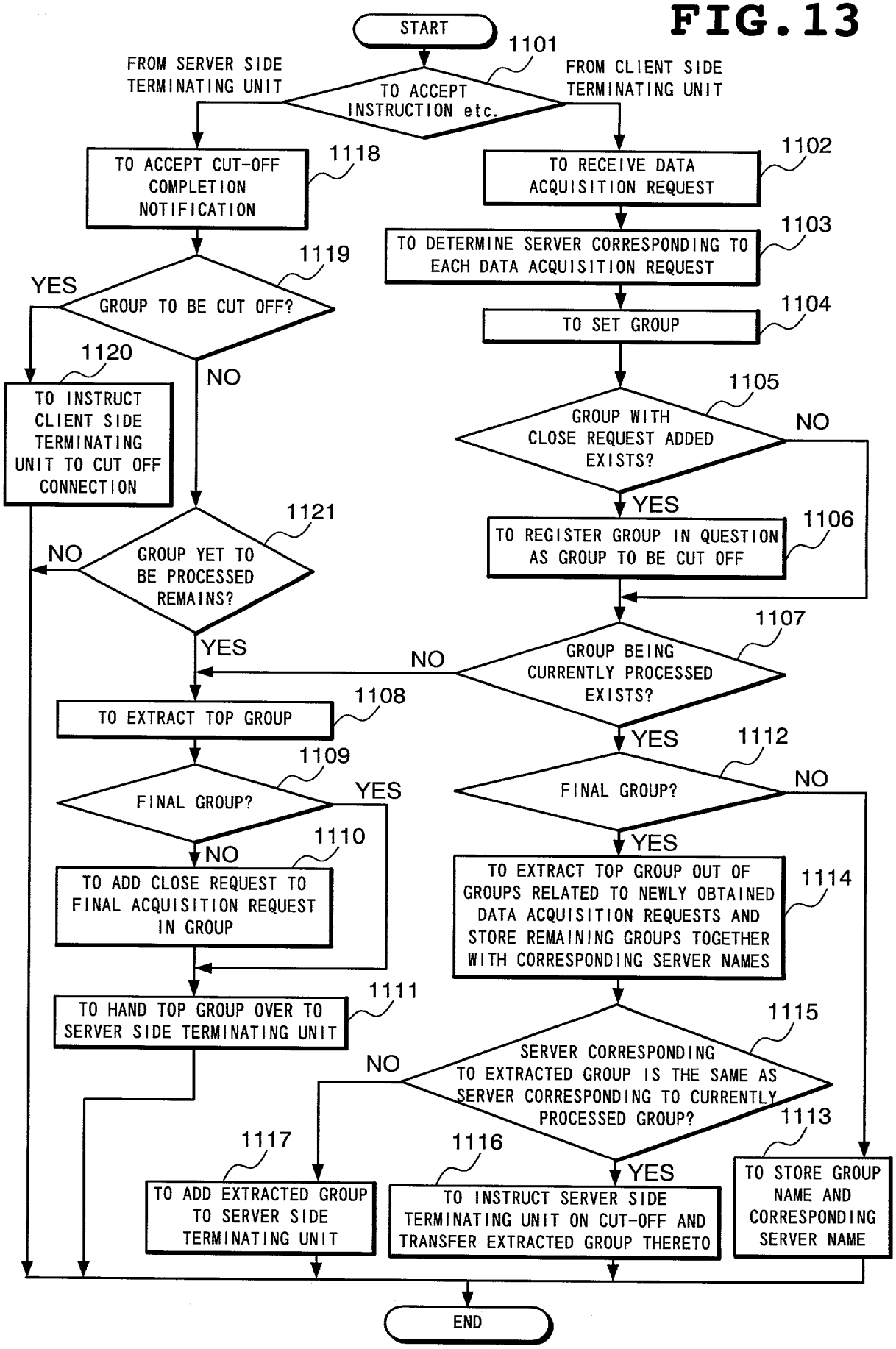
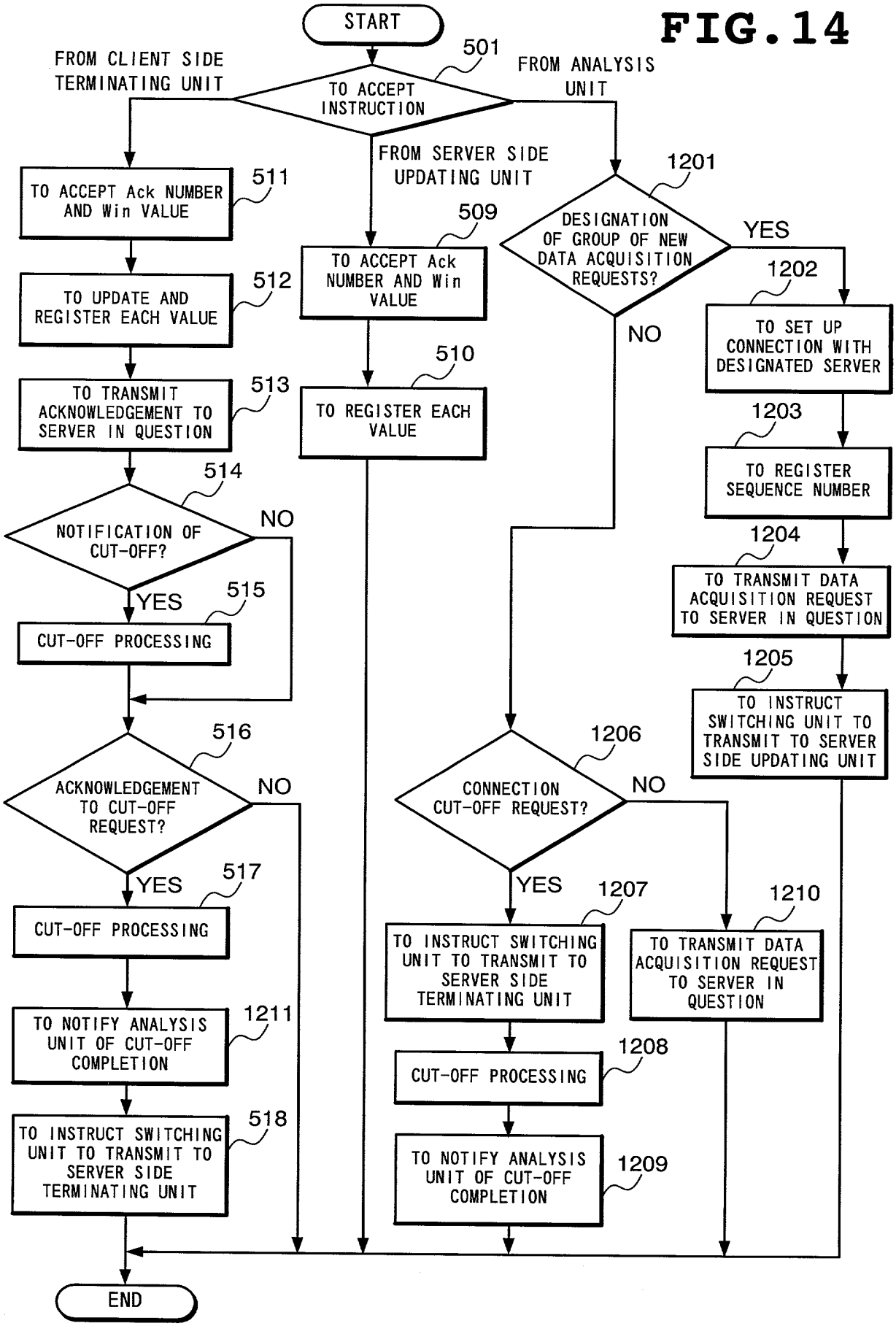


FIG.14



JP2007-505407A

FIG. 15

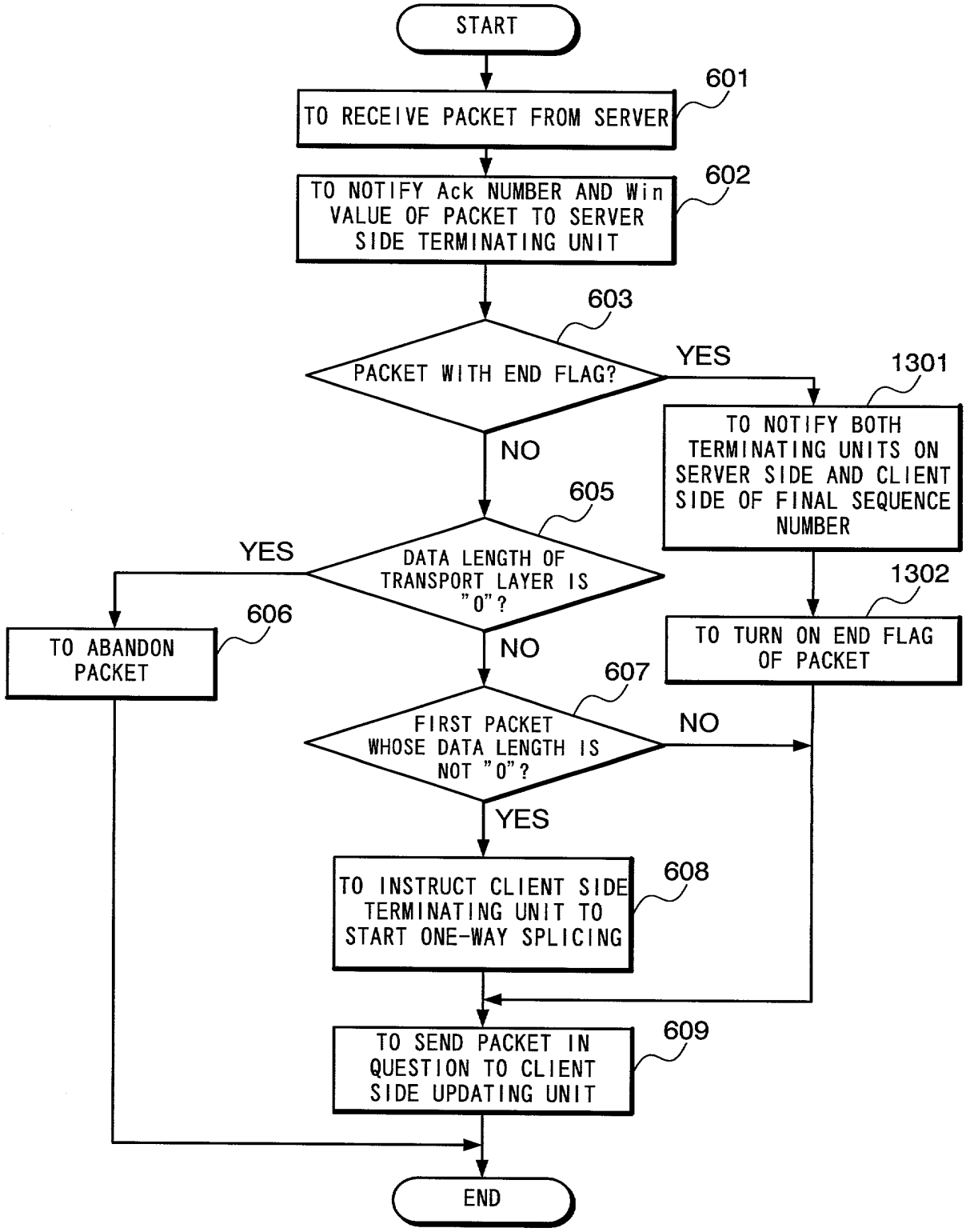

START
TO RECEIVE PACKET FROM SERVER
601
TO NOTIFY Ack NUMBER AND Win VALUE OF PACKET TO SERVER SIDE TERMINATING UNIT
602
603
PACKET WITH END FLAG?
YES
1301
TO NOTIFY BOTH TERMINATING UNITS ON SERVER SIDE AND CLIENT SIDE OF FINAL SEQUENCE NUMBER
NO
605
DATA LENGTH OF TRANSPORT LAYER IS "0"?
YES
606
TO ABANDON PACKET
1302
TO TURN ON END FLAG OF PACKET
NO
607
FIRST PACKET WHOSE DATA LENGTH IS NOT "0"?
NO
YES
608
TO INSTRUCT CLIENT SIDE TERMINATING UNIT TO START ONE-WAY SPLICING
609
TO SEND PACKET IN QUESTION TO CLIENT SIDE UPDATING UNIT
END

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FIG. 16

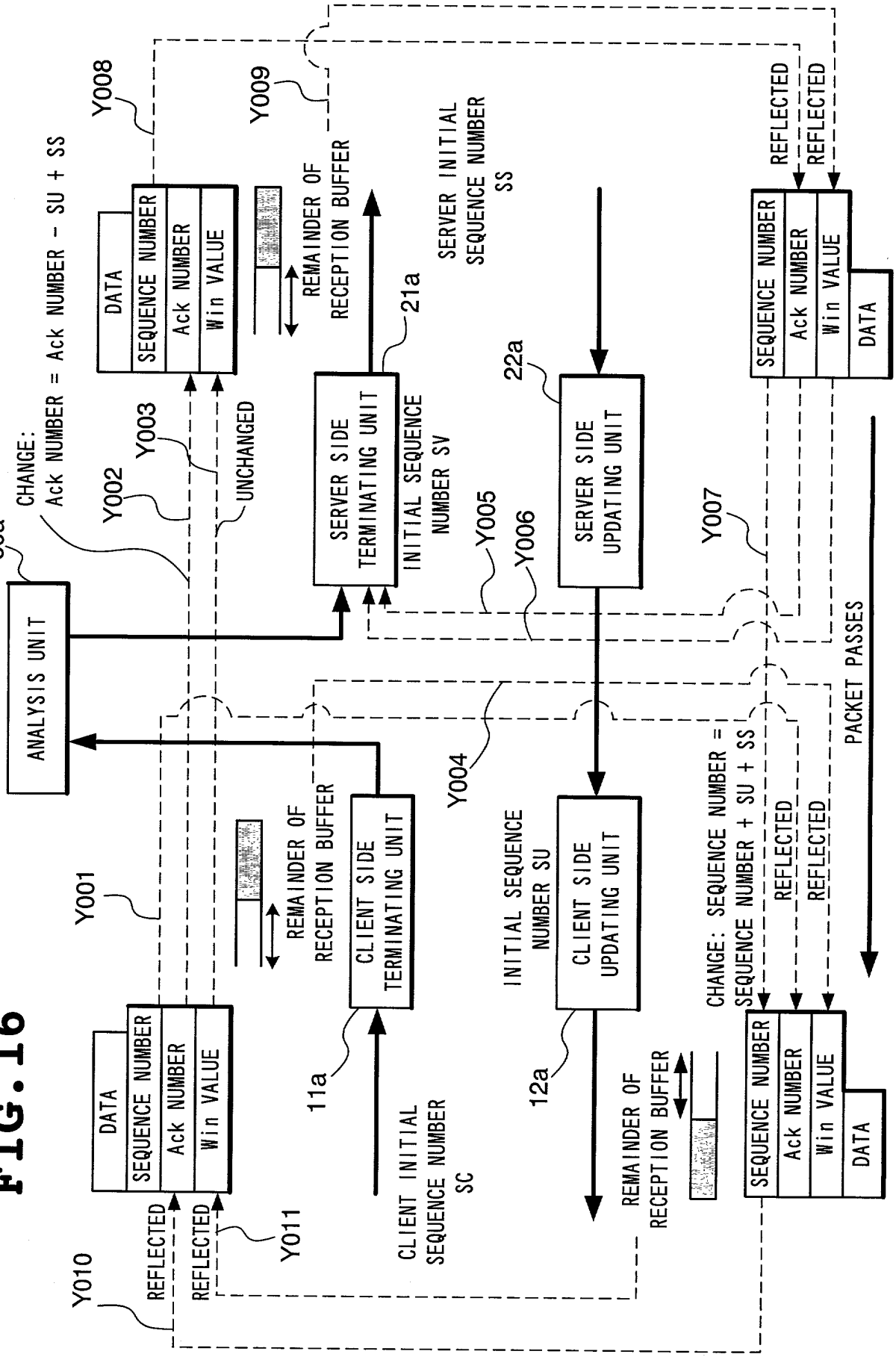


FIG. 17

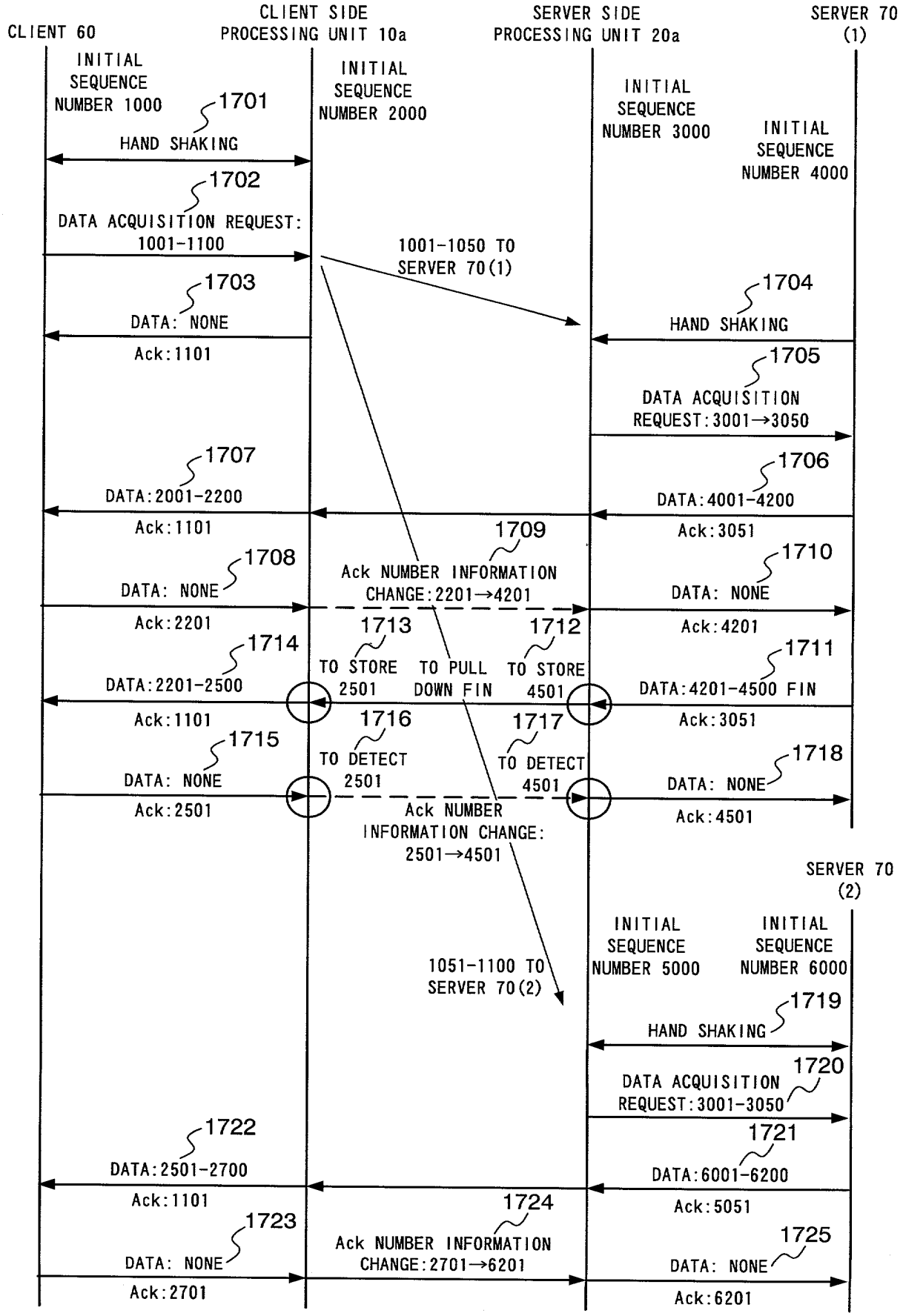
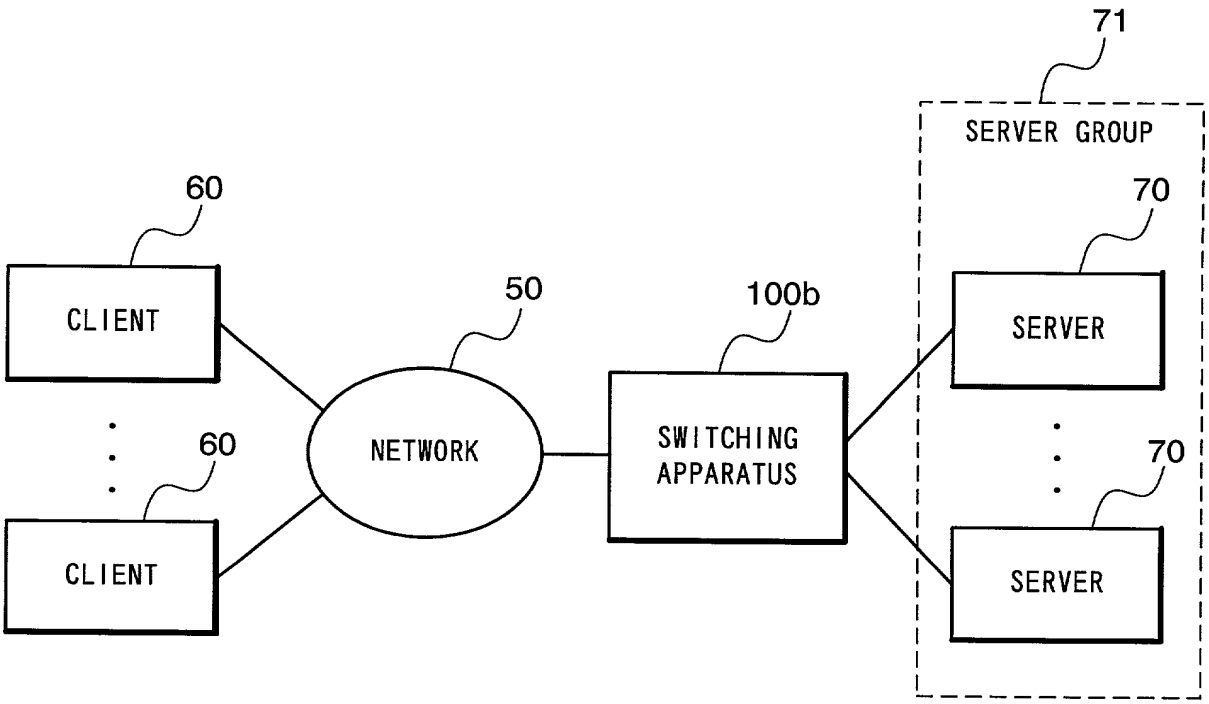

CLIENT 60
CLIENT SIDE PROCESSING UNIT 10a
SERVER SIDE PROCESSING UNIT 20a
SERVER 70 (1)
INITIAL SEQUENCE NUMBER 1000
INITIAL SEQUENCE NUMBER 2000
INITIAL SEQUENCE NUMBER 3000
INITIAL SEQUENCE NUMBER 4000
1701
HAND SHAKING
1702
DATA ACQUISITION REQUEST: 1001-1100
1001-1050 TO SERVER 70(1)
1703
DATA: NONE
Ack:1101
1704
HAND SHAKING
1705
DATA ACQUISITION REQUEST:3001→3050
1707
DATA:2001-2200
Ack:1101
1706
DATA:4001-4200
Ack:3051
1709
Ack NUMBER INFORMATION CHANGE:2201→4201
1708
DATA: NONE
Ack:2201
1710
DATA: NONE
Ack:4201
1713
TO STORE 2501
1712
TO PULL DOWN FIN
TO STORE 4501
1714
DATA:2201-2500
Ack:1101
1711
DATA:4201-4500 FIN
Ack:3051
1716
TO DETECT 2501
1717
TO DETECT 4501
1715
DATA: NONE
Ack:2501
1718
DATA: NONE
Ack:4501
Ack NUMBER INFORMATION CHANGE: 2501→4501
SERVER 70 (2)
1051-1100 TO SERVER 70(2)
INITIAL SEQUENCE NUMBER 5000
INITIAL SEQUENCE NUMBER 6000
1719
HAND SHAKING
1720
DATA ACQUISITION REQUEST:3001-3050
1722
DATA:2501-2700
Ack:1101
1721
DATA:6001-6200
Ack:5051
1724
Ack NUMBER INFORMATION CHANGE:2701→6201
1723
DATA: NONE
Ack:2701
1725
DATA: NONE
Ack:6201

FIG. 18 (PRIOR ART)



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Translation of 90/2007
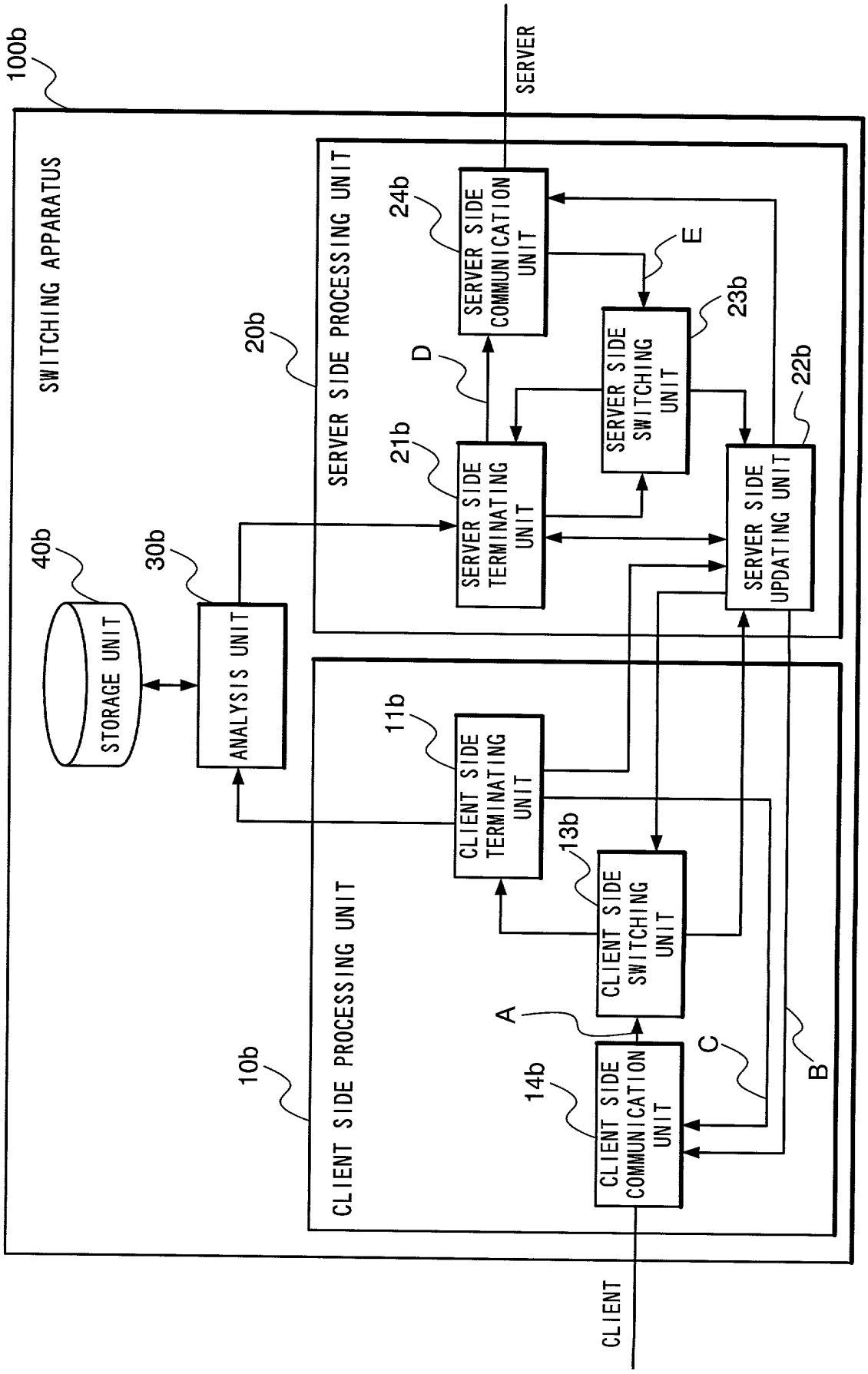
FIG. 19 (PRIOR ART)